New Hampshire
Drought Management Team (DMT)

1 October, 2020

Announcements;
- If WebEx crashes, this meeting will be rescheduled for next week.
- Note that this meeting is being recorded for later posting.
- Please hold questions till the end to ensure we have time to cover all material.

New Hampshire Drought Management Team (DMT)
Agenda
October 1, 2020 – 2:30 PM
WebEx

Introductions of Presenters and Agenda – Tom O'Donovan, Chair and Director, Water Division, NHDES

Current Drought conditions and Forecast for New Hampshire, Mary Stampone, UNH – State Climatologist

Drought Impacts

- **Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES**
- **Reservoirs, Jim Gallagher, Administrator, Dam Bureau, Water Division, NHDES**
- **Groundwater, Shane Csiki, NHGS**
- **Drinking Water, Brandon Kernen, Administrator, DWGB, Water Division, NHDES**
- **Agriculture, Commissioner Jasper, NH Dept. of Agriculture**
- **Forest Fire, NH Dept. of Natural and Cultural Resources**

Ongoing Actions

- **Messaging: Informing and Public Messaging Jim Martin, Public Information, NHDES**

Drought Management Team Discussion (input from all DMT participants)

- **Recommended responses to any specific impacts**
- **Recommended public messaging**
- **Next steps**
- **Next session; proposed for 5 November 2020**

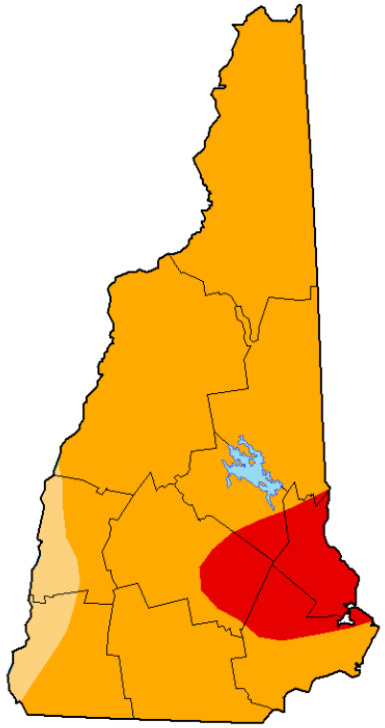

Are we getting the message out?

Tom O'Donovan, Water Division Director, NHDES

What does "D3, Extreme Drought" mean?

New Hampshire

Current Map > Ne



Map released: Thurs. October 1, 2020

Data valid: September 29, 2020 at 8 a.m. EDT

Intensity:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Author(s):

Brad Rippey, U.S. Department of Agriculture

The Drought Monitor focuses on broad-scale conditio conditions may vary. See accompanying text summar forecast statements.

Map Download

No text:

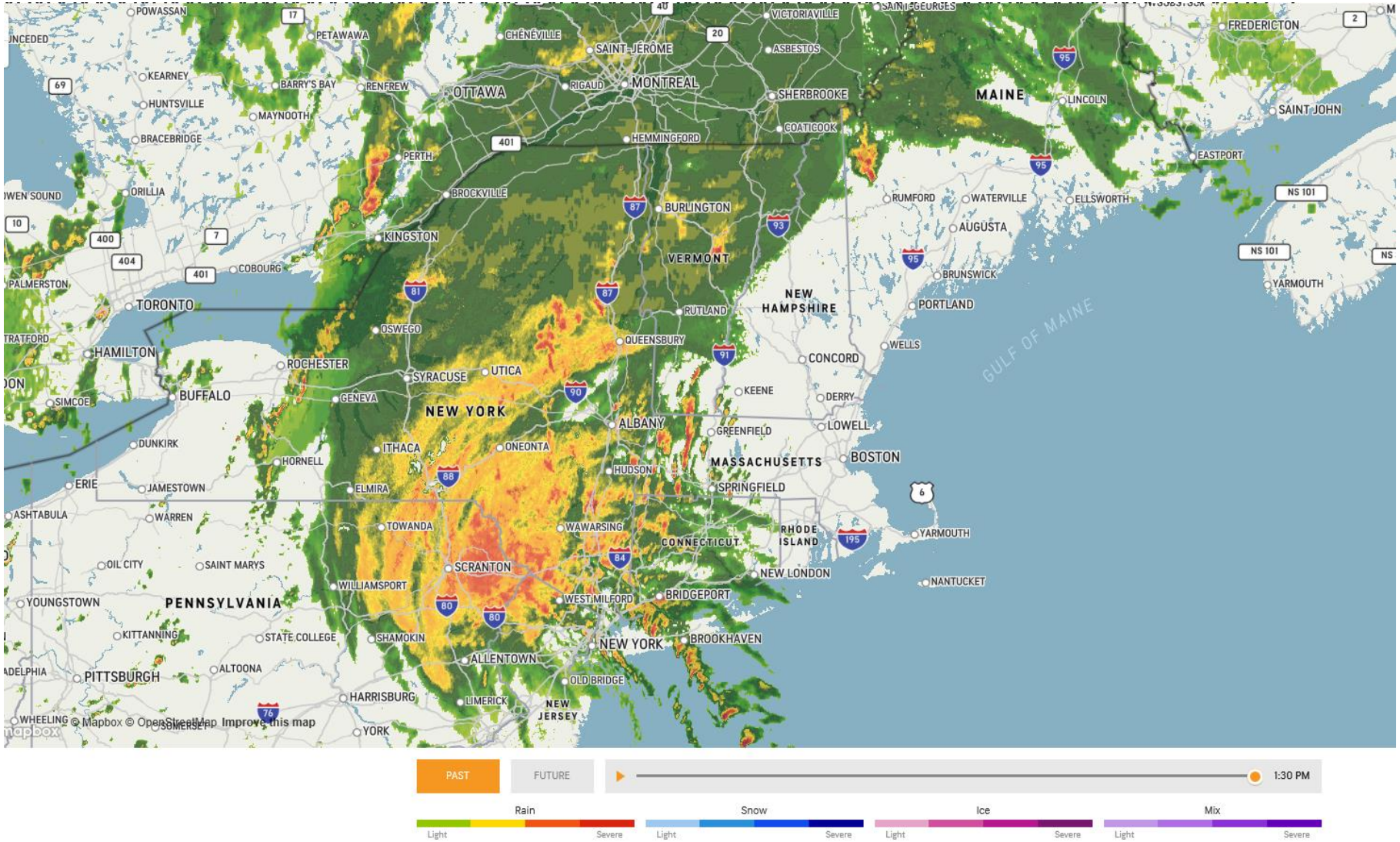
Legend:

	Current Map	Maps	Data	Summary	About	Conditions & Outlooks
D0	Crop growth is stunted; planting is delayed					
	Fire danger is elevated; spring fire season starts early					
	Lawns brown early; gardens begin to wilt					
	Surface water levels decline					
D1	Irrigation use increases; hay and grain yields are lower than normal					
	Honey production declines					
	Wildfires and ground fires increase					
	Trees and landscaping are stressed; fish are stressed					
	Voluntary water conservation is requested; reservoir and lake levels are below normal capacity					
D2	Specialty crops are impacted in both yield and fruit size					
	Producers begin feeding cattle; hay prices are high					
	Warnings are issued on outdoor burns; air quality is poor					
	Golf courses conserve water					
	Trees are brittle and susceptible to insects					
	Fish kills occur; wildlife move to farms for food					
	Water quality is poor; groundwater is declining; irrigation ponds are dry; outdoor water restrictions are implemented					
D3	Crop loss is widespread; Christmas tree farms are stressed; dairy farmers are struggling financially					
	Well drillers and bulk water haulers see increased business					
	Water recreation and hunting are modified; wildlife disease outbreak is observed					
	Extremely reduced flow to ceased flow of water is observed; river temperatures are warm; wells are running dry; people are digging more and deeper wells					
D4	New Hampshire has had little or no experience in D4 so no impacts have been recorded at that level ir the Drought Impact					

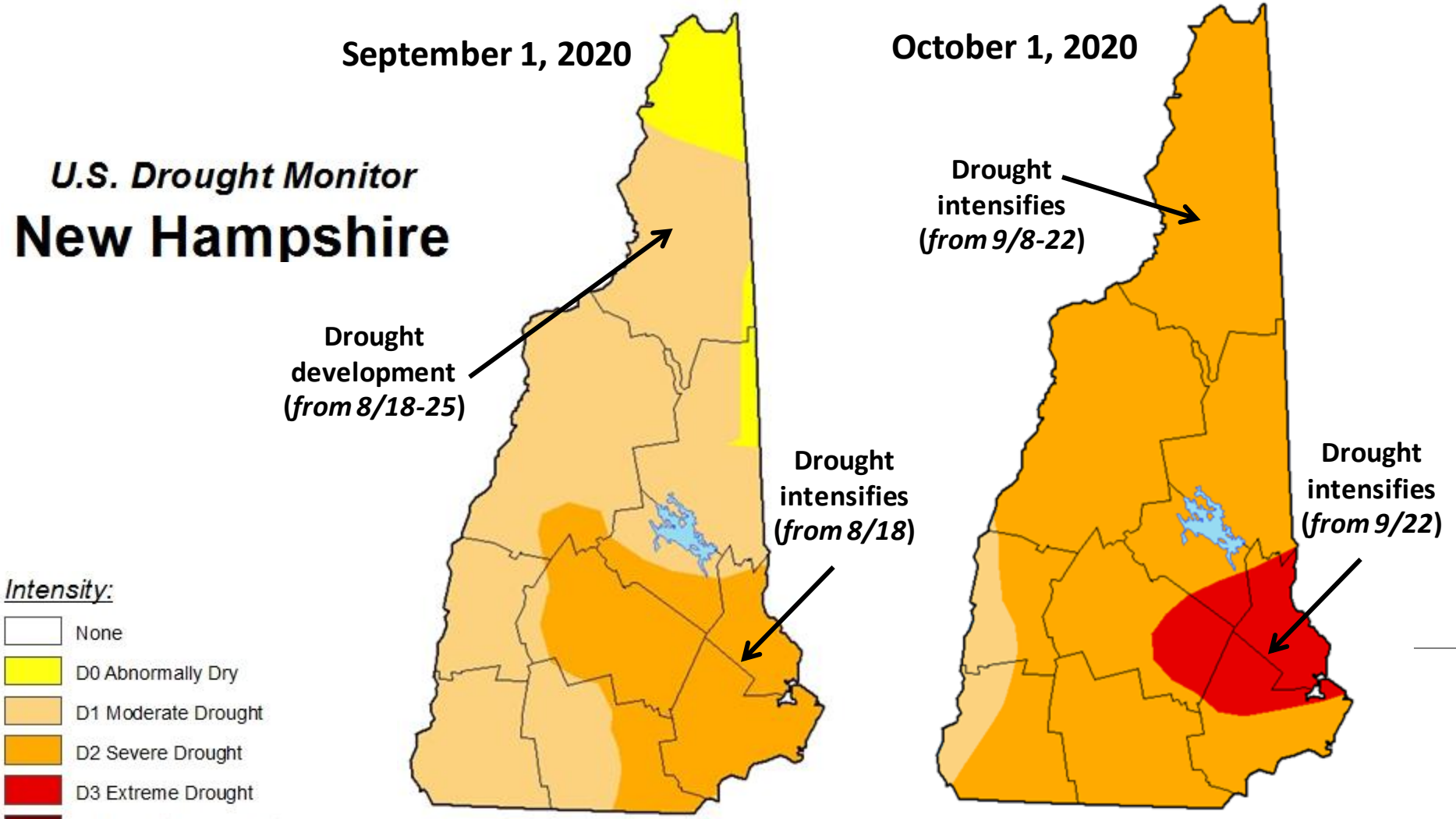
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH

How did we get to D3, Extreme Drought?

Low snowpack, very low precipitation.
And Tropical Storm Isaias…missed…just like TS Fay missed…



II. Current Drought and Forecast for New Hampshire



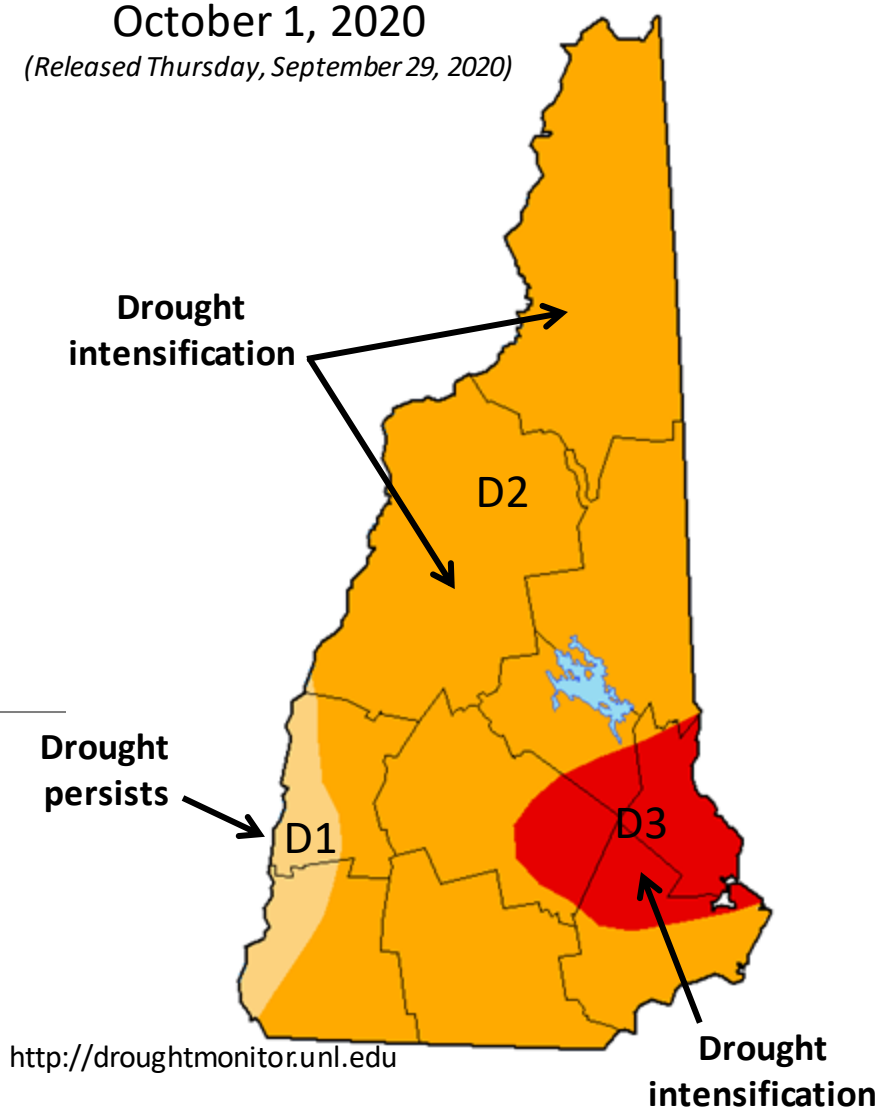
Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2020-09-29	0.00	100.00	100.00	95.06	10.59	0.00
2020-09-01	0.00	100.00	92.85	28.31	0.00	0.00

II. Current Drought and Forecast for New Hampshire

US Drought Monitor

October 1, 2020

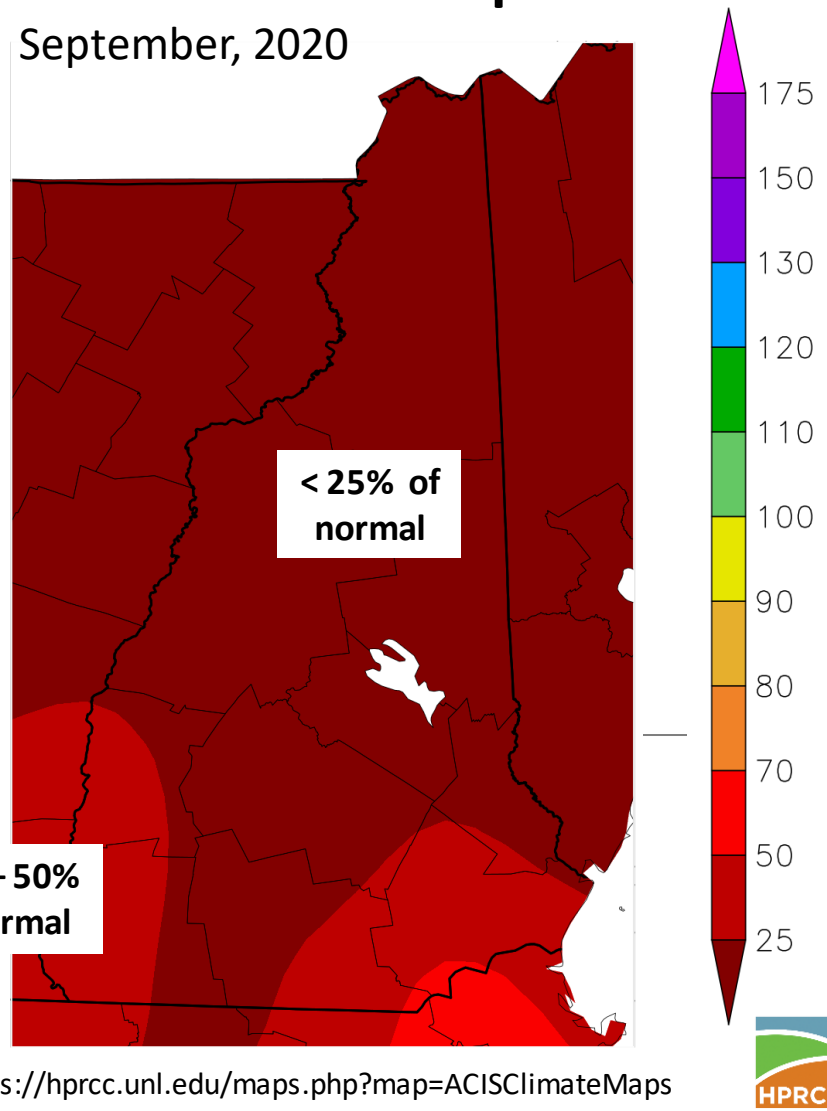
(Released Thursday, September 29, 2020)



http://droughtmonitor.unl.edu

% of Normal Precipitation

September, 2020

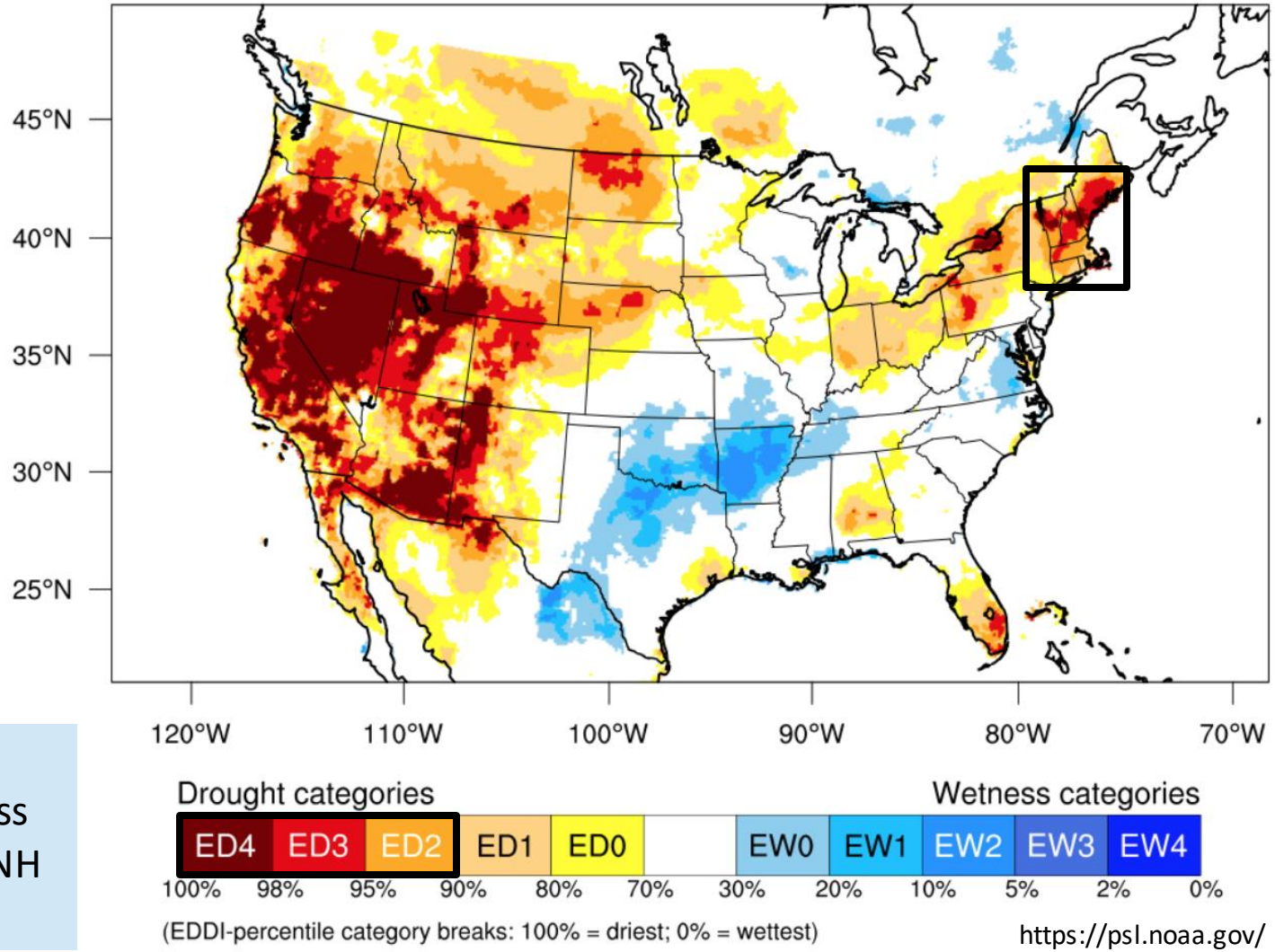


https://hprcc.unl.edu/maps.php?map=ACISClimateMaps

1-Month EDDI

September 25, 2020

Temperature driven increase in evaporative demand.



https://psl.noaa.gov/

Above normal temperatures across the eastern half of NH in September

II. Current Drought and Forecast for New Hampshire

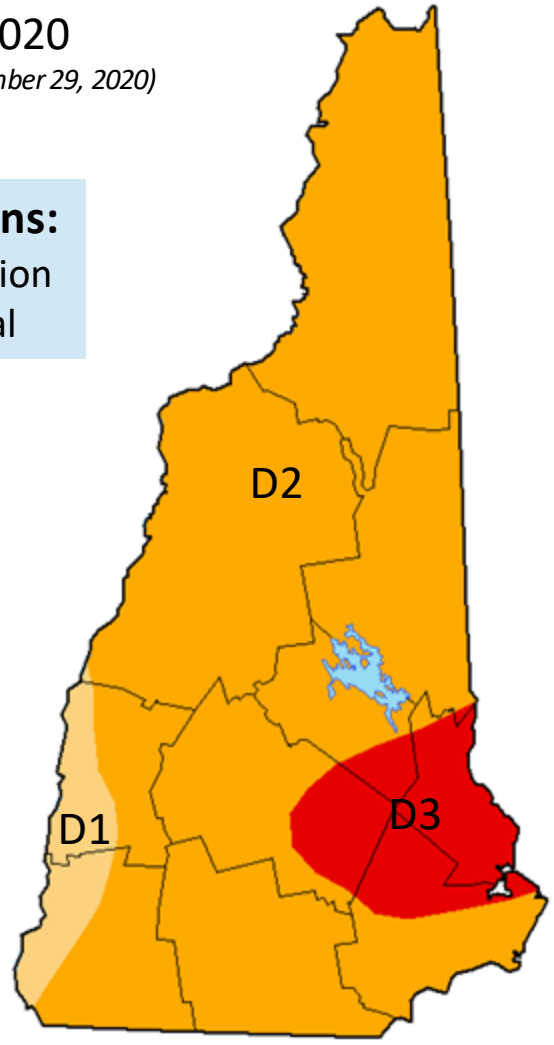
US Drought Monitor

October 1, 2020

(Released Thursday, September 29, 2020)

Current conditions:

- 3-mo precipitation < 75% of normal



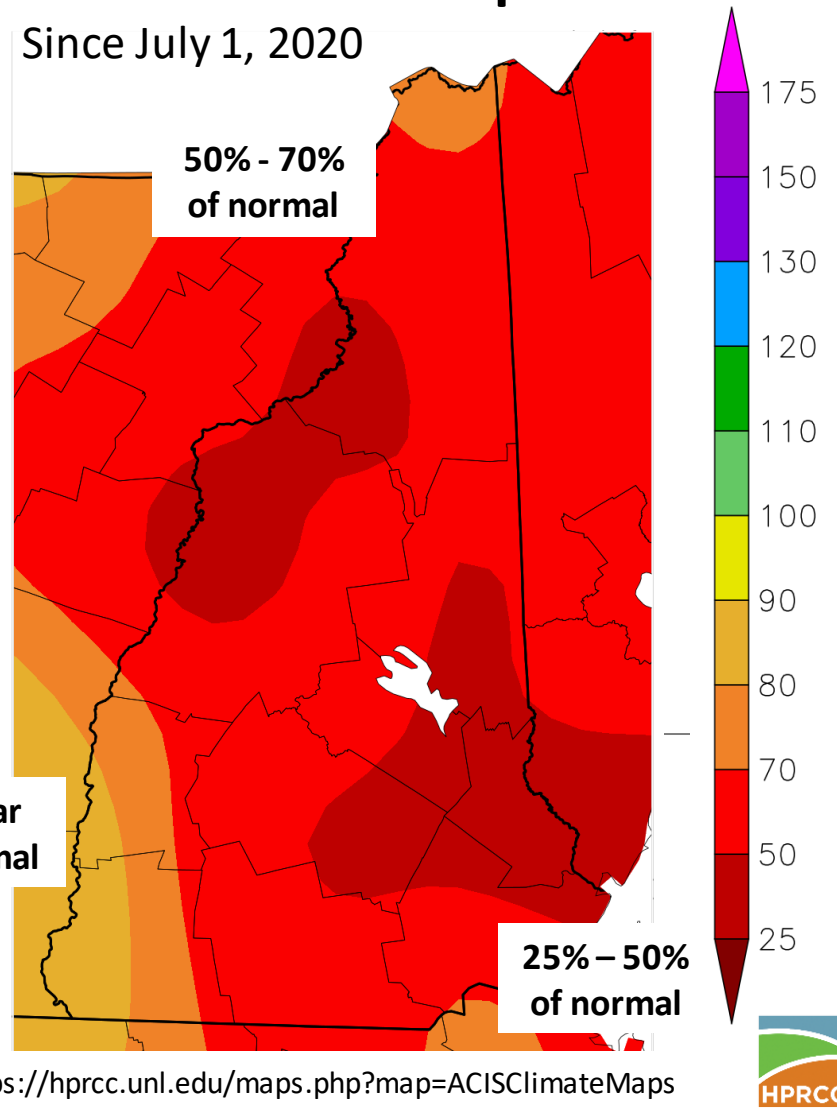
Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

http://droughtmonitor.unl.edu/

% of Normal Precipitation

Since July 1, 2020



https://hprcc.unl.edu/maps.php?map=ACISClimateMaps

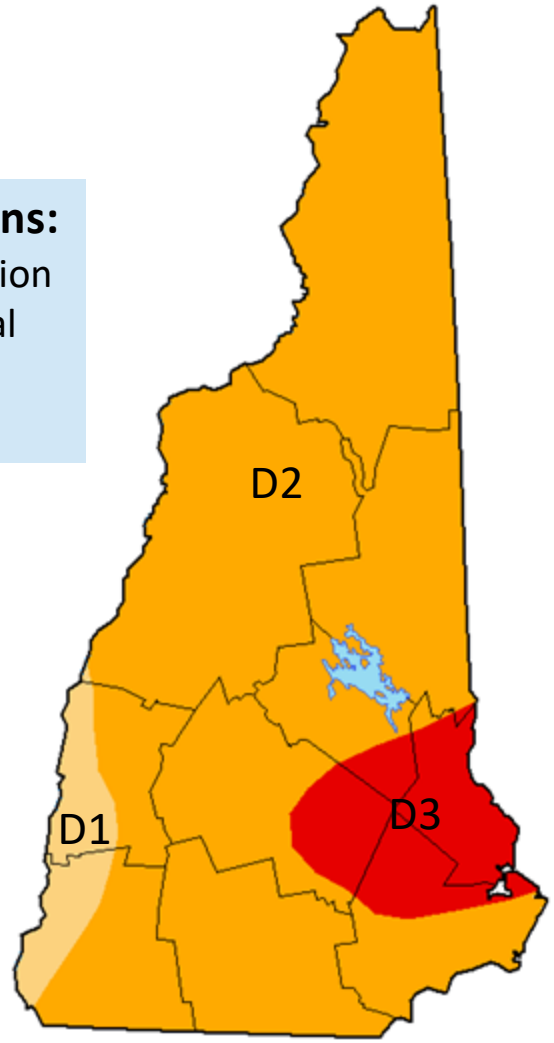
II. Current Drought and Forecast for New Hampshire

US Drought Monitor

September 1,
(Released Thursday, Septe

Current conditions:

- 3-mo precipitation < 75% of normal
- 3-month SPI & PSDI < -1.0



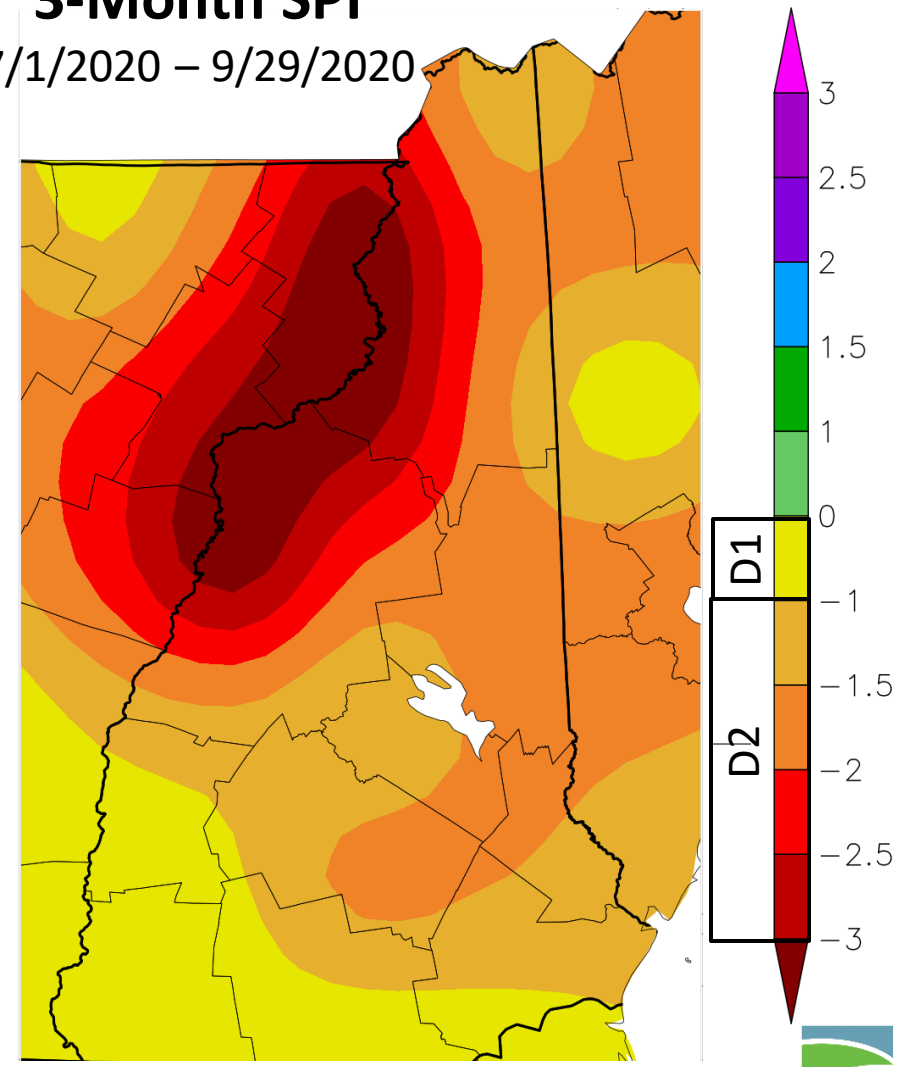
Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

http://droughtmonitor.unl.edu/

3-Month SPI

7/1/2020 – 9/29/2020



https://hprcc.unl.edu/maps.php?map=ACISClimateMaps

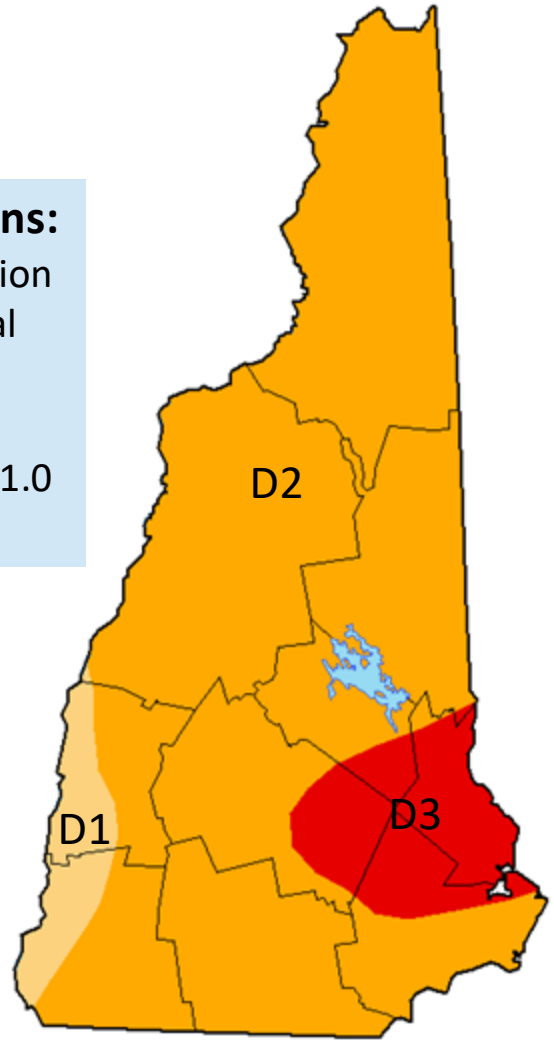
II. Current Drought and Forecast for New Hampshire

US Drought Monitor

October 1,
(Released Thursday, Septe

Current conditions:

- 3-mo precipitation < 75% of normal
- 3-month SPI & PSDI < -1.0
- 6-month SPI < -1.0 & PDSI < -2.0



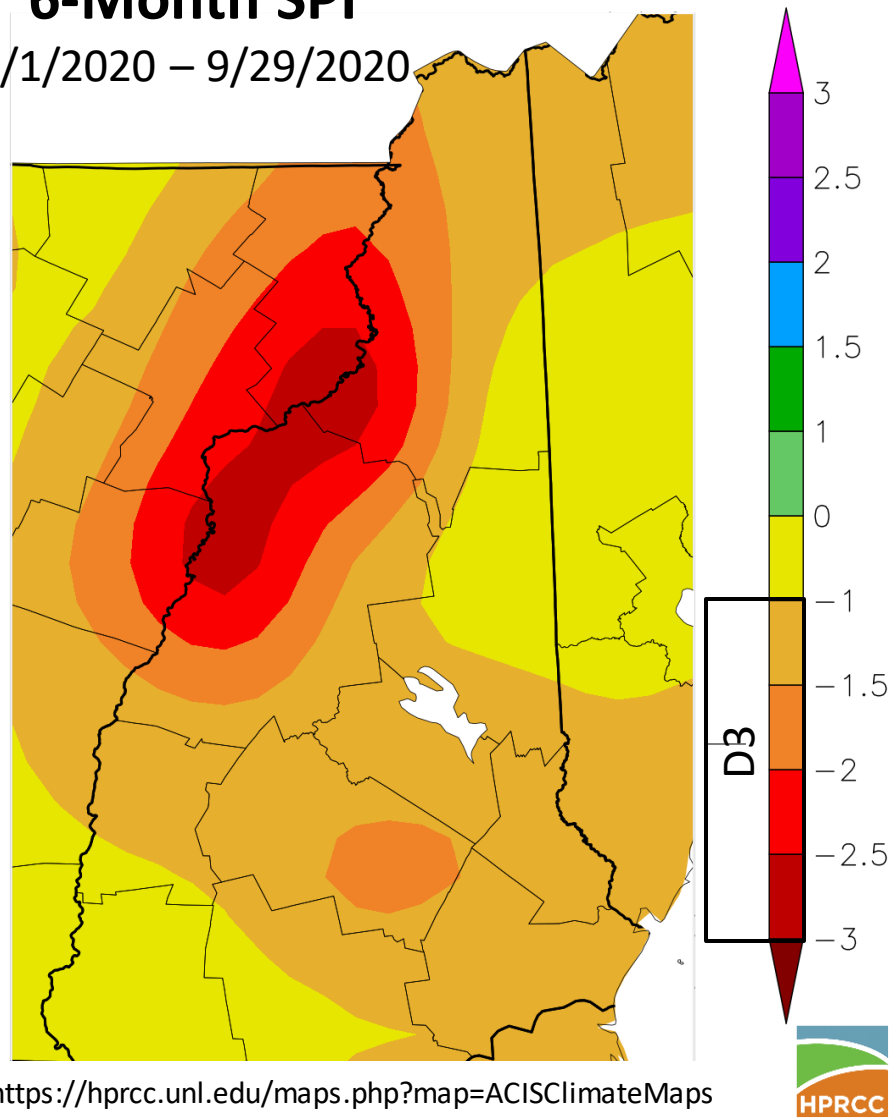
Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

http://droughtmonitor.unl.edu/

6-Month SPI

4/1/2020 – 9/29/2020



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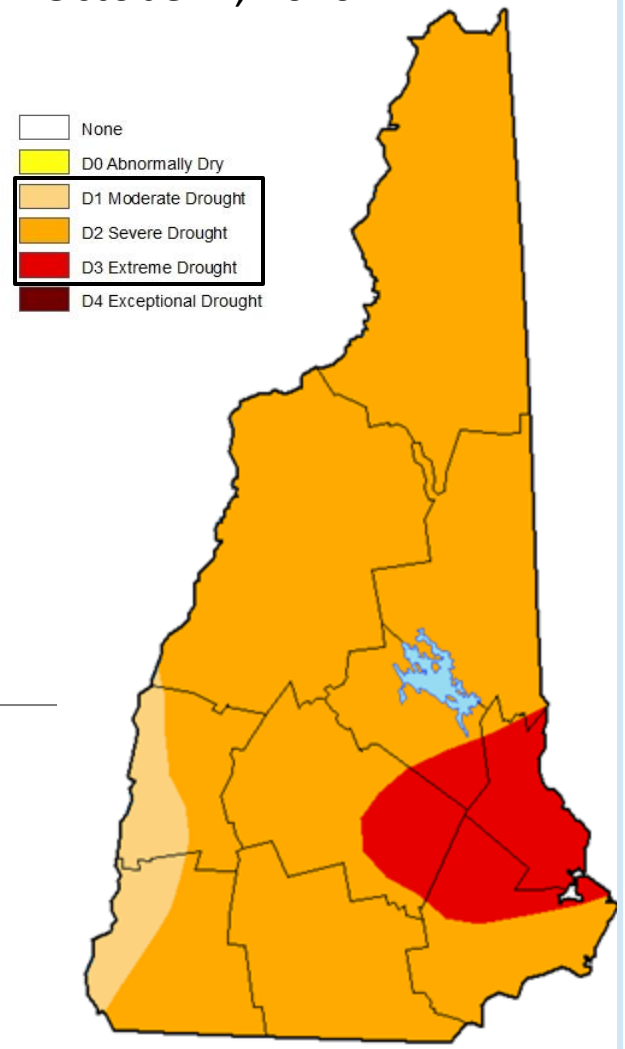
II. Current Drought and Forecast for New Hampshire

US Drought Monitor

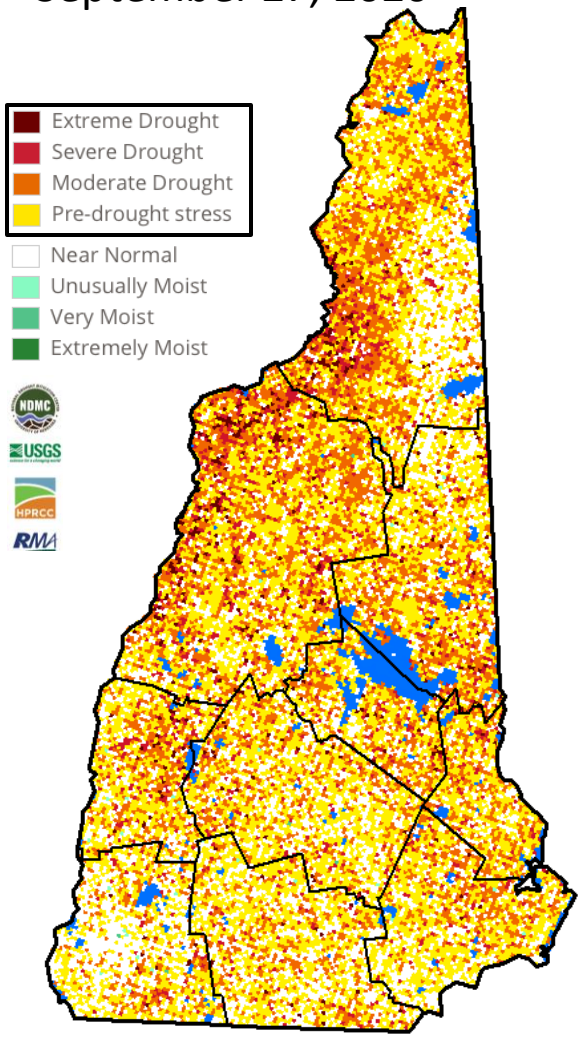
October 1, 2020



http://droughtmonitor.unl.edu

VegDRI

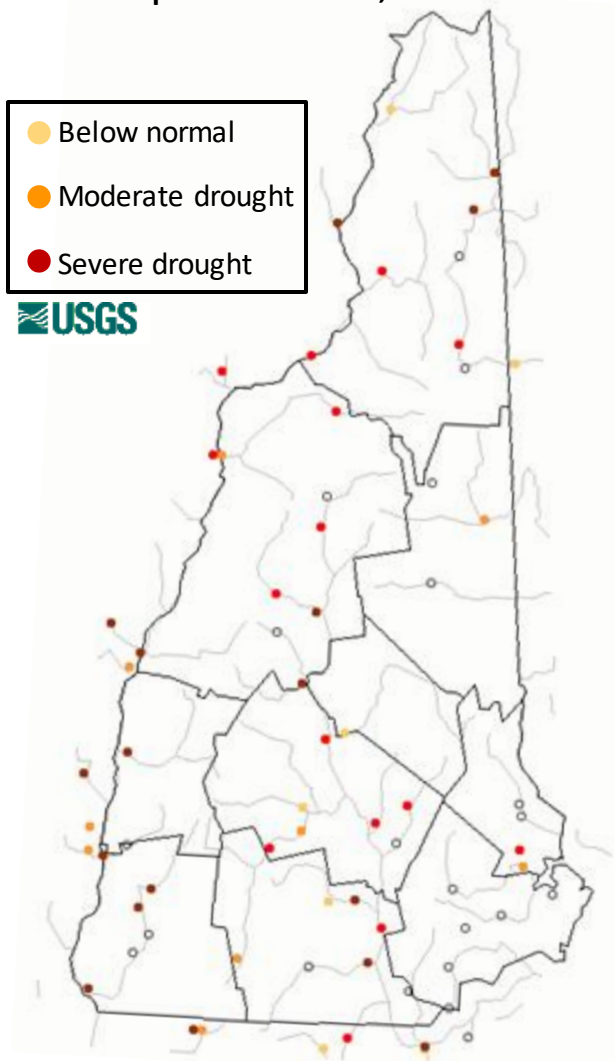
September 27, 2020



https://vegdri.unl.edu/Home/StateVegDRI.aspx?NH

Hydrologic Drought

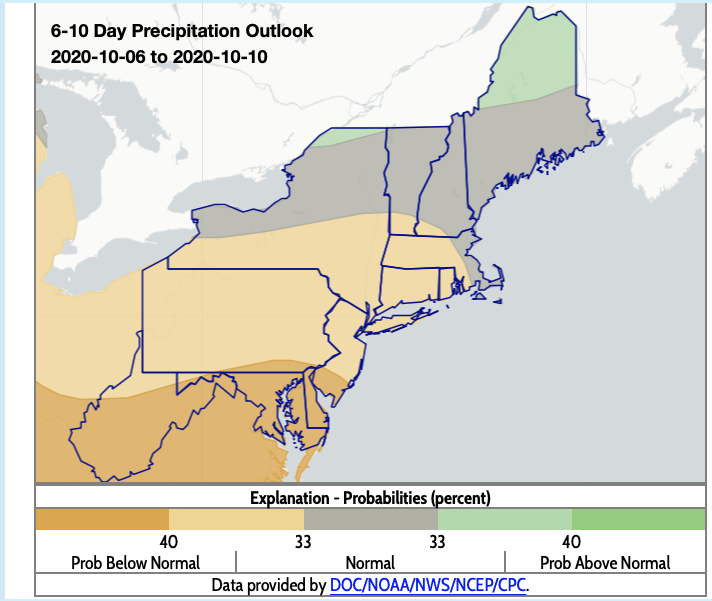
September 29, 2020

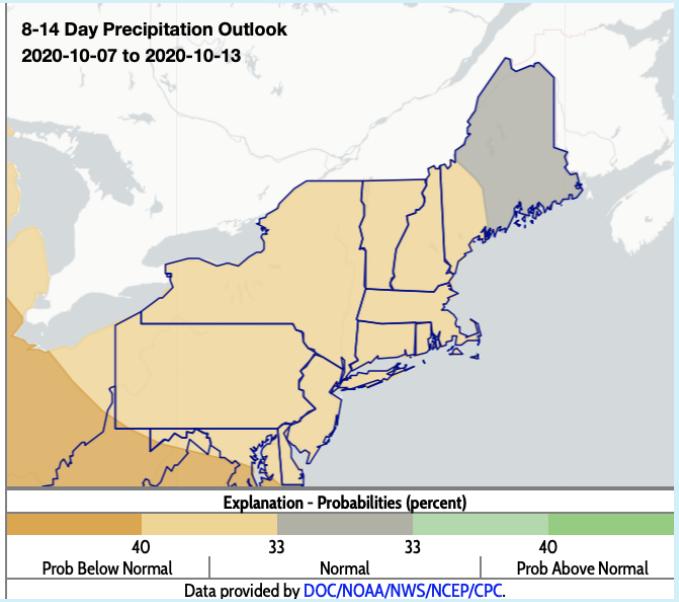


https://waterwatch.usgs.gov/index.php

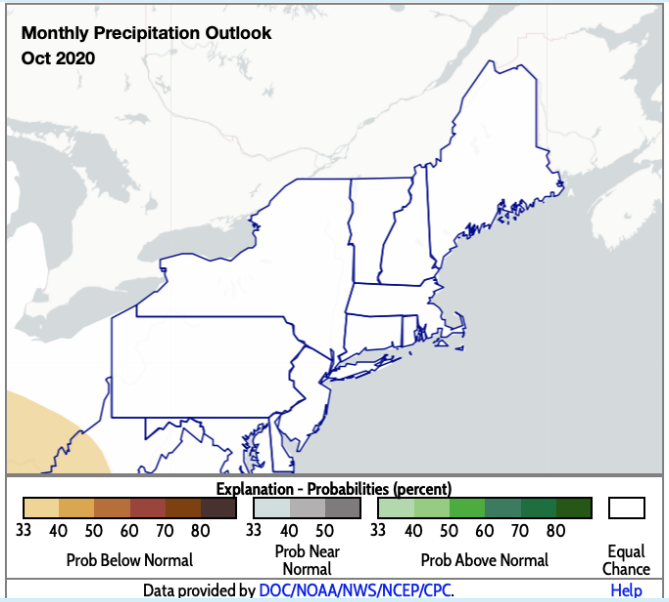
II. Current Drought and Forecast for New Hampshire

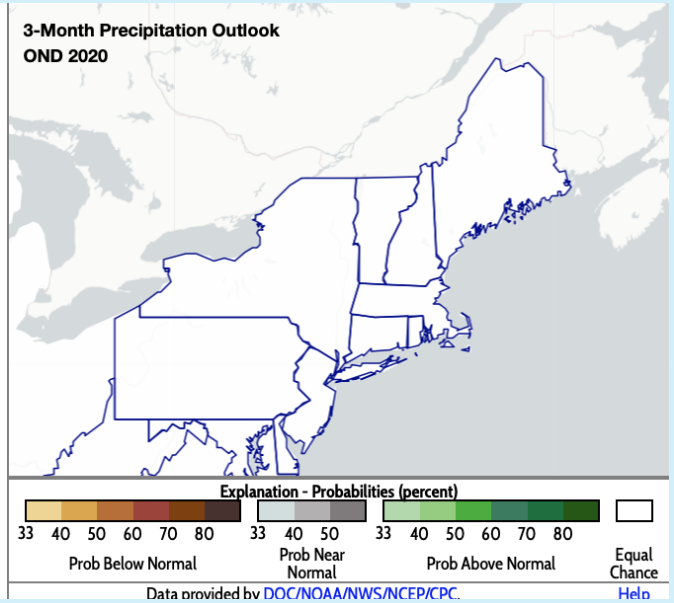
- Normal precipitation likely through 10/9
- Potentially below normal precipitation





- Precipitation outlooks uncertain for one & three months

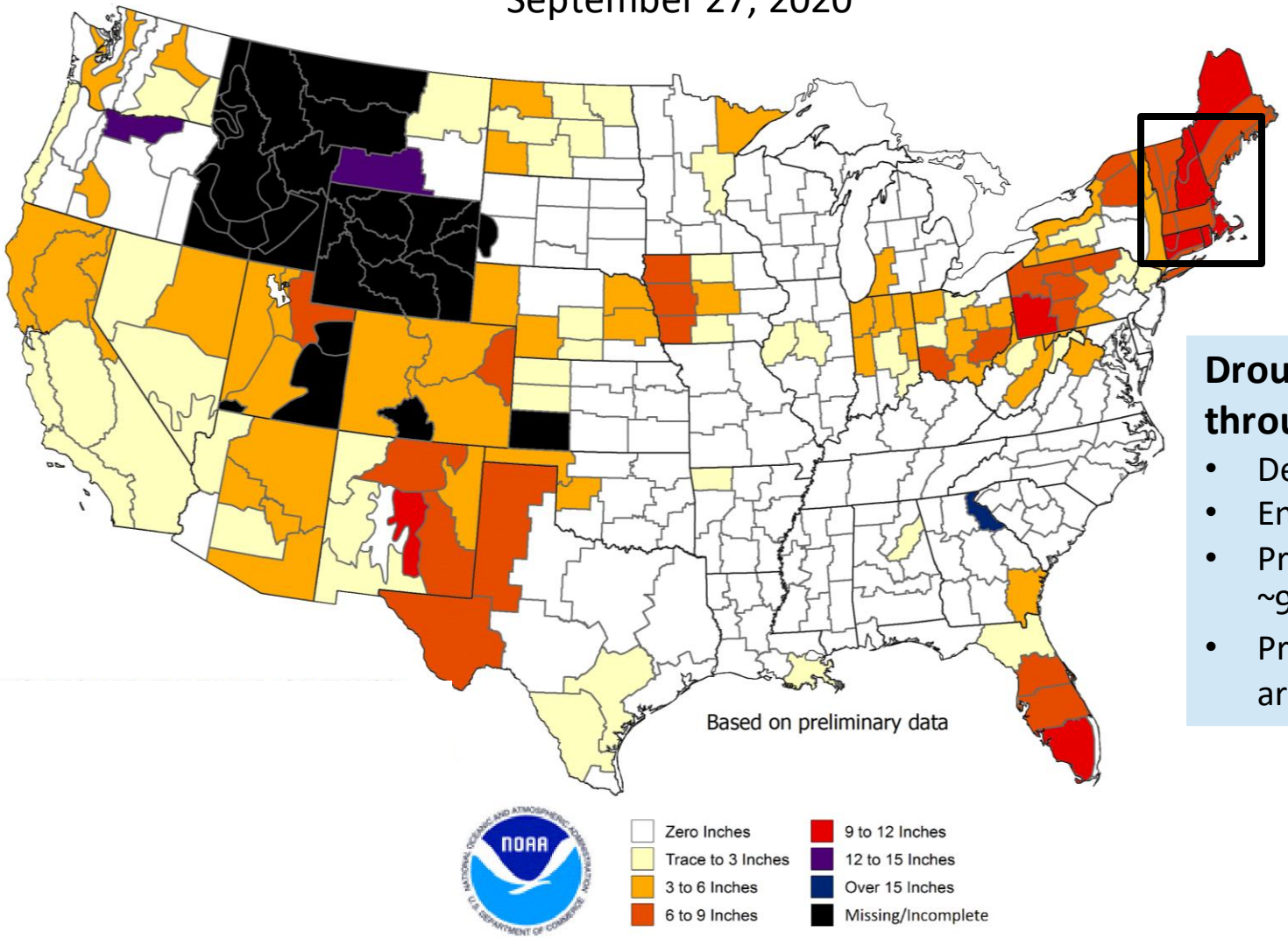




II. Current Drought and Forecast for New Hampshire

Long Term Palmer Drought Severity Index

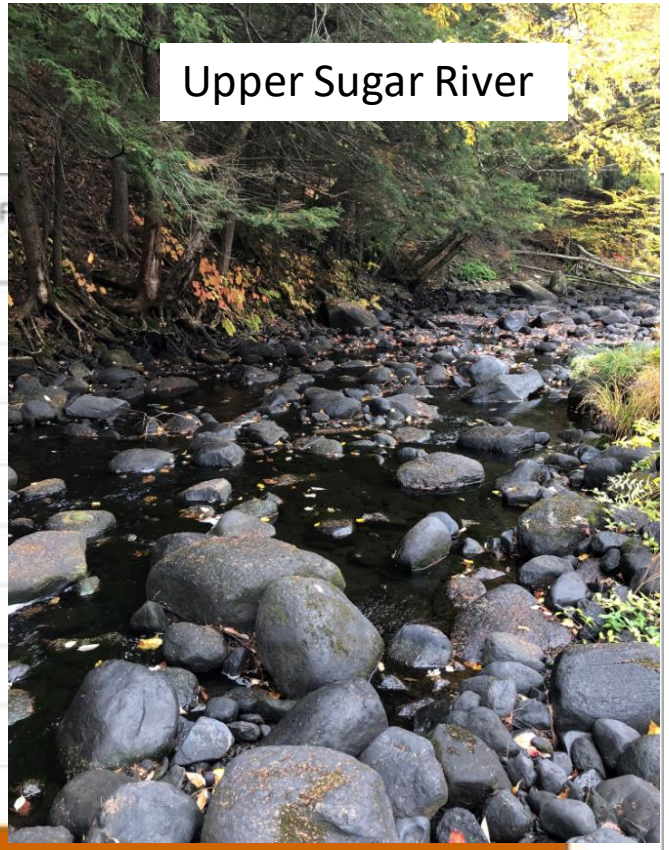
September 27, 2020

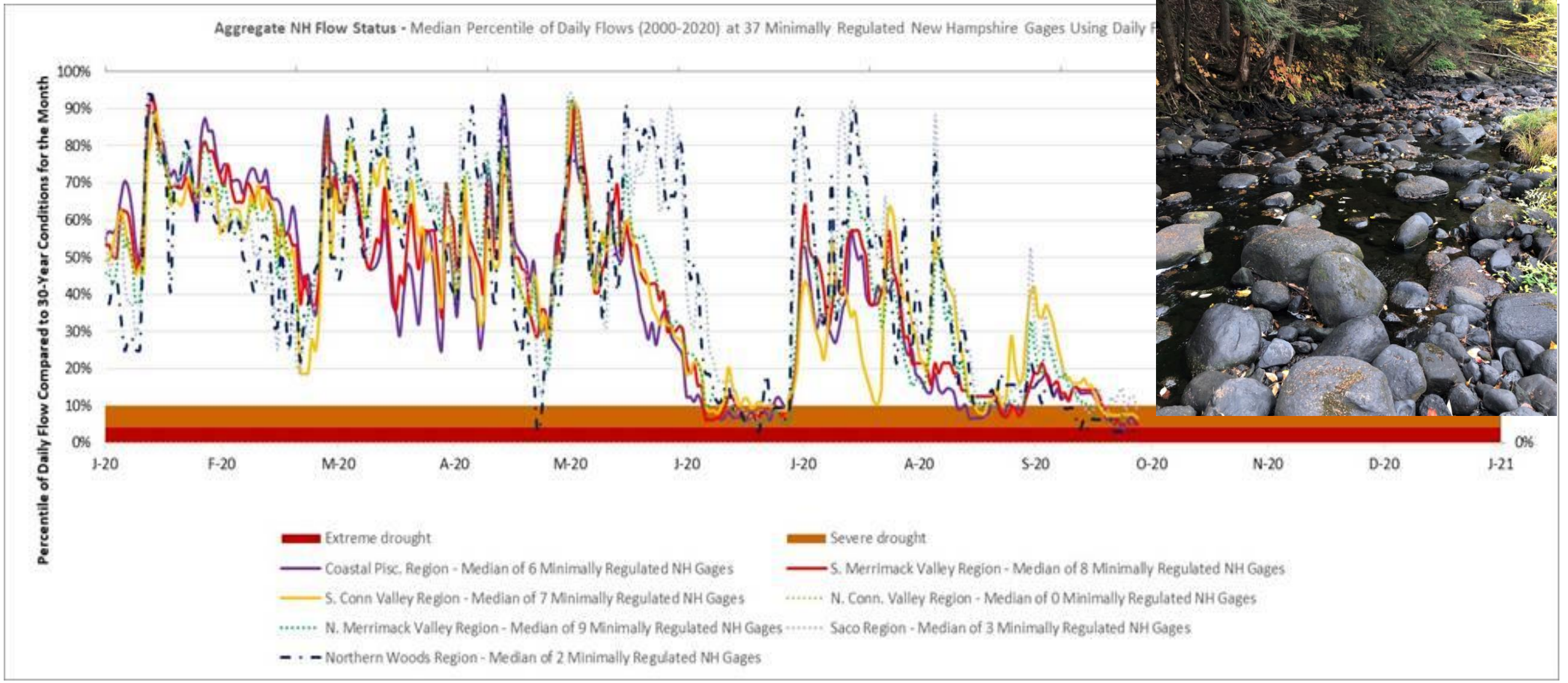


Drought persists through fall:

- Declining temperature
- End of growing season
- Precipitation deficits ~9-12 inches
- Precipitation outlooks are uncertain

Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES

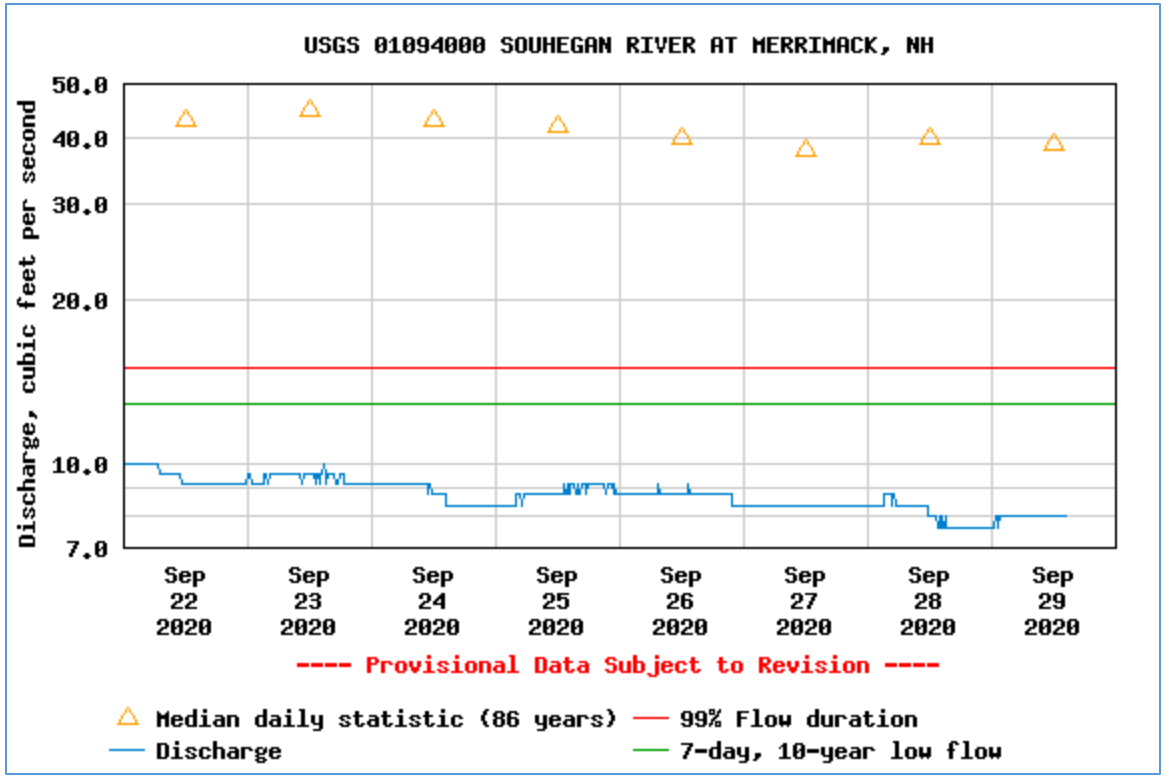


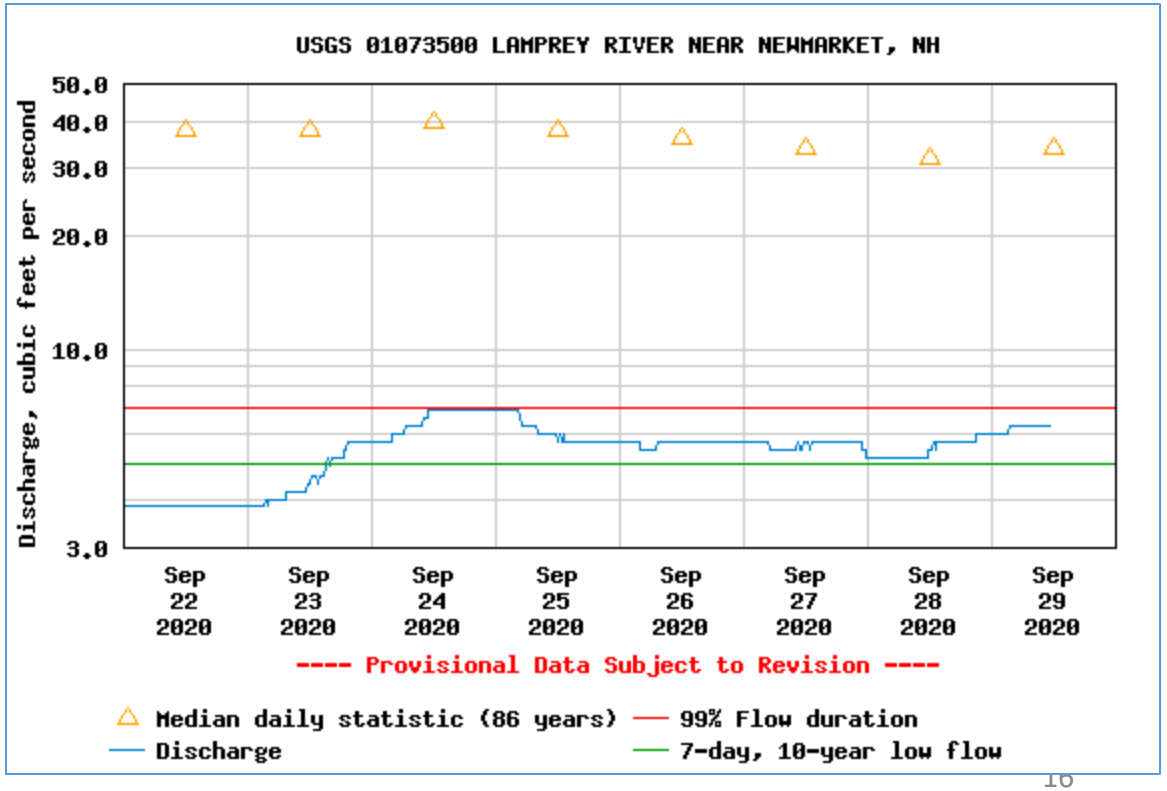


Rivers and Streams, Ted Diers, Administrator,
Watershed Bureau, Water Division, NHDES

Instream Flow Program

- Users in both Souhegan and Lamprey Rivers have been implementing water management plans.
- Lamprey River is below Critical and Rare flows. Relief pulse #3 September 9-11. Released 14 cfs for 48 hours. Pulse for Sept. 29-Oct. 1 suspended, but forecasted rain dwindling. May be reinstated. Fall drawdowns delayed b/c of low lake levels.
- Souhegan River is below the Critical and Rare flows.





Rivers and Streams, Ted Diers, Administrator,
Watershed Bureau, Water Division, NHDES

Low rivers = Low lakes

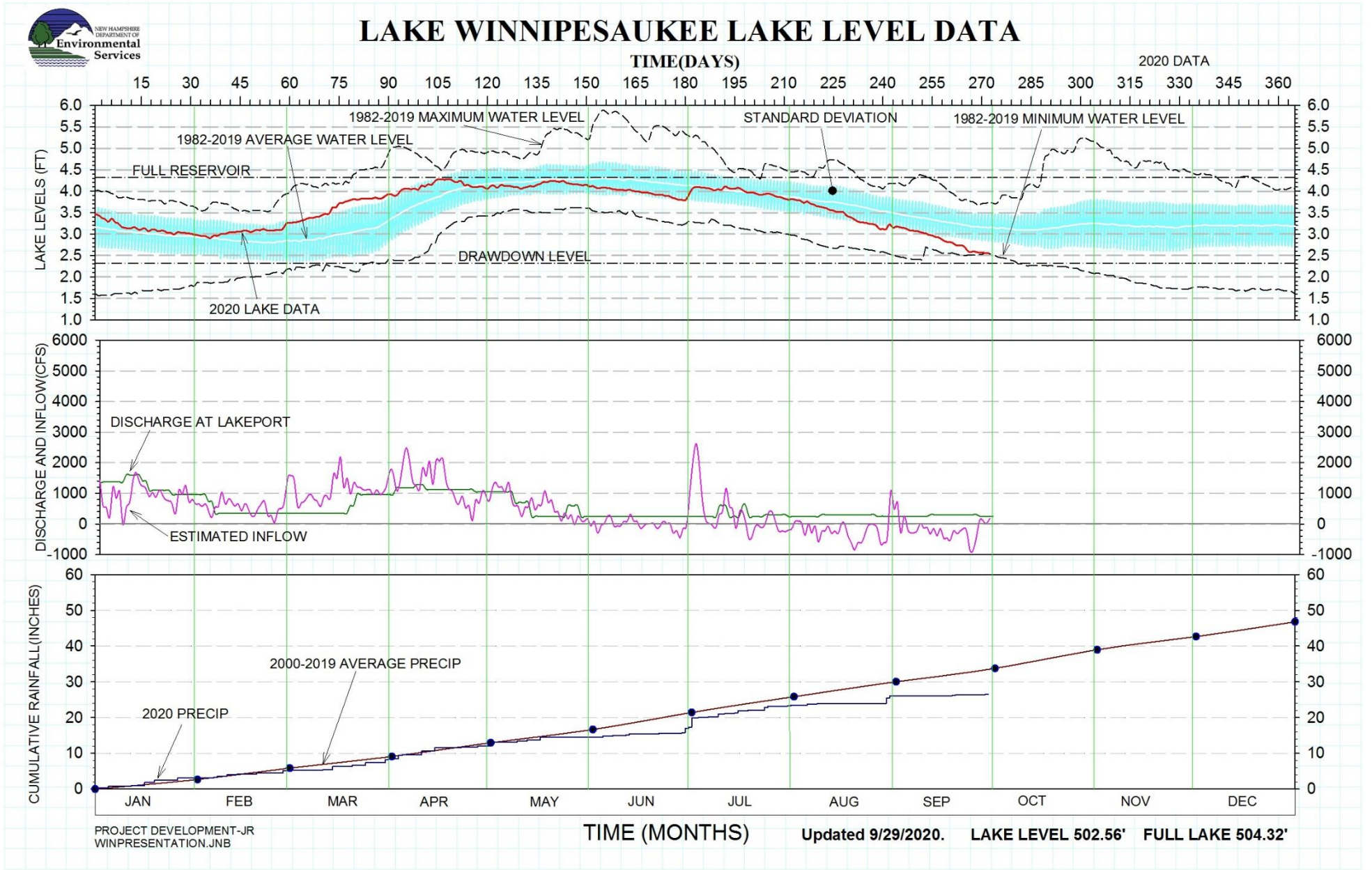
Bellamy Reservoir -- September 25, 2020

October 15, 2018

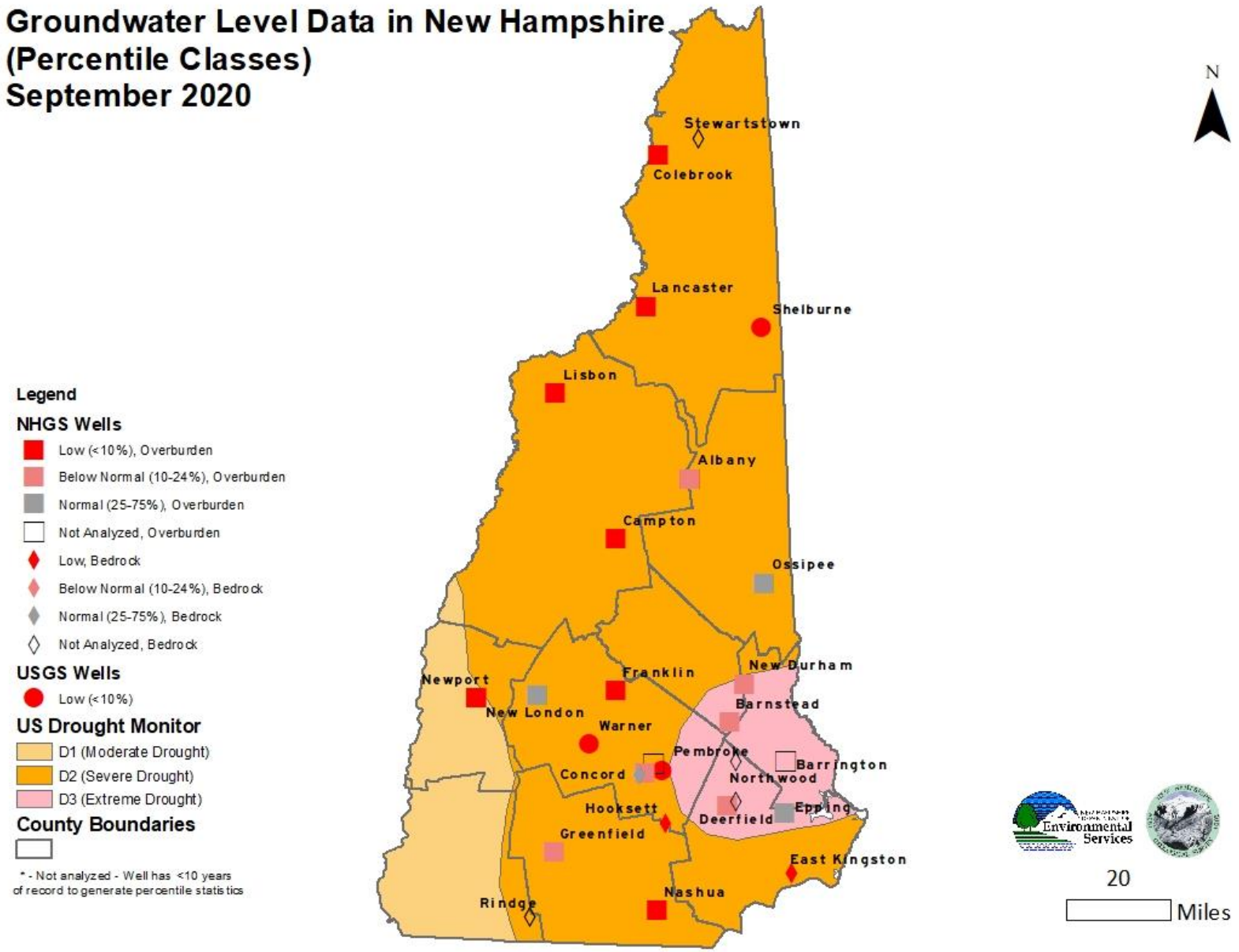
Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES

Lake Francis

Drought Impacts, Reservoirs. Jim Gallagher, Administrator, Dams Bureau, Water Division, NHDES



Drought Impacts, Groundwater, Shane Csiki, NH Geologic Survey, NHDES



Majority of monitoring wells have groundwater levels that are “Below Normal” or “Low” as compared to median levels for the Period of Record of each well for the month of September.

All monitoring wells showed decreases (lowering) of groundwater levels in September, as compared to the August levels.

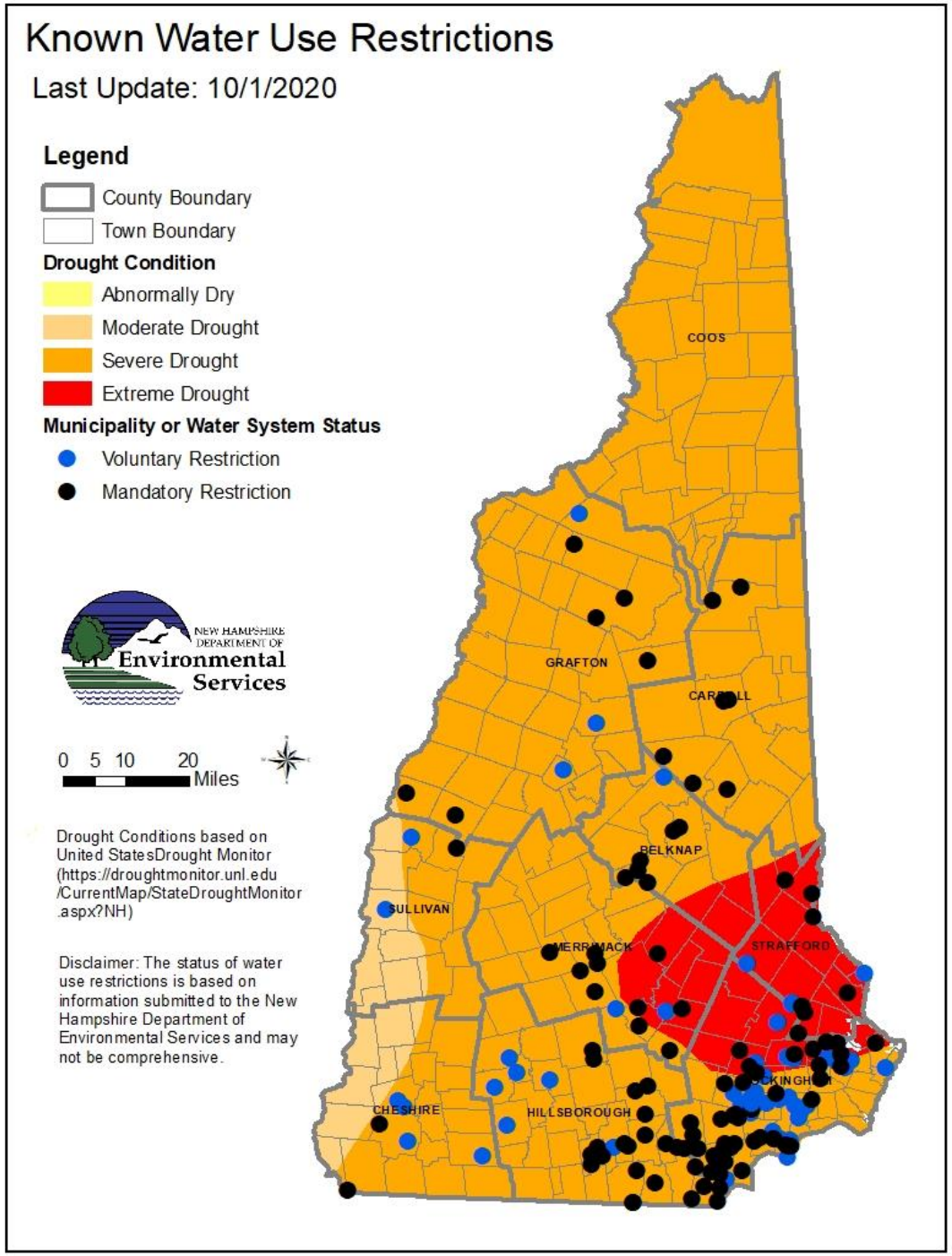
Drought Impacts, Drinking Water, Brandon Kernen,
Administrator, DWGB, Water Division, NHDES

Drinking Water

- 111 Water systems have mandatory restrictions/54 have voluntary restrictions
- 7 Municipalities have implemented outdoor water use restrictions (5 mandatory/2 voluntary)
- Only a few public water systems have had to develop emergency water sources
- NHDES held an online meeting with water systems on 9/25 & covered:
  - Well replacement/deepening
  - New emergency wells
  - Hydrofracturing
  - Hauling in bulk water supplies

Drought is Compounding Other Challenges

- **COVID-19**
- **PFAS Contamination**
- **New arsenic MCL**



Water Use Restriction Map and Summary Table Are Posted on NHDES' Drought Webpage

Drought Impacts, Drinking Water, Brandon Kernen,
Administrator, DWGB, Water Division, NHDES

Drinking Water

NHDES is receiving an increased number of calls regarding impacts to residential wells

- All well types in southern NH
- Mainly dug/shallow wells near lakes and rivers in northern NH
- Water well contractors have a several week/month backlog

FOR IMMEDIATE RELEASE:
DATE: September 24, 2020
CONTACT: Jim Martin, (603) 568-9777

Drought Impacts, Drinking Water, Brandon Kernen, Administrator, DWGB, Water Division, NHDES

NHDES Says Last Chance to Conserve and Asks Residents to Report Well Supply Issues

Concord, NH – As drought conditions persist throughout the state and worsen in parts of New Hampshire, The New Hampshire Department of Environmental Services (NHDES) is urging residents to conserve water now, and to report well problems to the state. According to the U.S. Drought Monitor, the entire state remains in drought and 8.5% of the state has now been elevated to D3-Extreme Drought, the third of four stages of drought. The lack of snow pack this past winter, along with well-below average precipitation this year are causing groundwater and surface water levels to continue drop.

As the growing season winds down and cooler temperatures set in, there is only a small window of time left to eliminate non-essential outdoor use in an effort to sustain supplies to meet essential future needs. NHDES recommends lawn watering stop and lawns be left to go into dormancy, which is a normal process for a lawn and occurs every winter. NHDES also recommends the elimination of all other non-essential outdoor use, such as car washing, washing down of driveways and patios, and power washing. Those residents on private wells are at a higher risk of experiencing supply issues and should conserve indoors and outdoors, as well as spread out water usage throughout the day to allow the well to recharge between uses. Information on opportunities to conserve such as fixing leaks and replacing outdated water fixtures may be found on the NHDES Drought Management webpage.

Since the current method for classifying drought was established in 2000, 2016 was the only other year NH experienced extreme drought. Currently, groundwater levels are below normal and similar to 2016, residential well owners across the state are reporting supply issues. Well drillers are experiencing a significant increase in business due to residents looking to remedy well issues and others hoping to avoid them. Due to the demand, well drillers are reporting waits greater than 6 weeks to get a new well drilled and others are booked until the end of the year. Many people deepened their wells after the 2016 drought, which may be providing resiliency for this drought. Some residents are seeking other options, such as hiring a bulk water hauler to fill their wells. While bulk water may seem to provide some temporary relief from dry well conditions, NHDES does not encourage this practice as it poses risks to the integrity of the well and water quality and generally has little benefit, as a great deal of water is lost to water seeping out of the well. If citizens wish to do this, the following steps should be followed to provide recharge to a drinking water well:

- Water needs to be obtained from a public water system or a source of water approved in accordance with regulations for Emergency Bulk Water Supply for Public Water Systems;
- Water needs to be transported in a dedicated tank for potable water that is consistent rules for Emergency Bulk Water Supply for Public Water Systems; and
- Water must be discharged into the well using hoses that are dedicated for use with potable water and using sanitary handling practices.

Residential well owners are requested to report water supply issues to NHDES using the "Residential Well Impact Survey" on the NHDES Drought Management webpage. To locate the survey, latest drought conditions and information related to managing residential wells during drought, go to www.des.nh.gov and scroll down the "A-Z list" to Drought Management.

New Hampshire
Department of Agriculture, Markets & Food

Drought Impacts, Shawn Jasper, Commissioner, NH Department of Agriculture, Markets & Food

Critical messaging; NH Farmers are impacted, but still in business. They need our support. Buy local.
“Smaller this year, but sweeter.”

NEW HAMPSHIRE FOREST PROTECTION BUREAU

WILDFIRE UPDATE

October 1, 2020

Presenter: Captain Doug Miner

Current Conditions

Incident complexity has increased with COVID-19

Despite the ongoing drought effects fire size has been small and incidents down

Labor intensive fires have increased

207 Fires & 83 Acres

Current Fire Activity


Concord


Woodstock


Barrington


Farmington


Orange

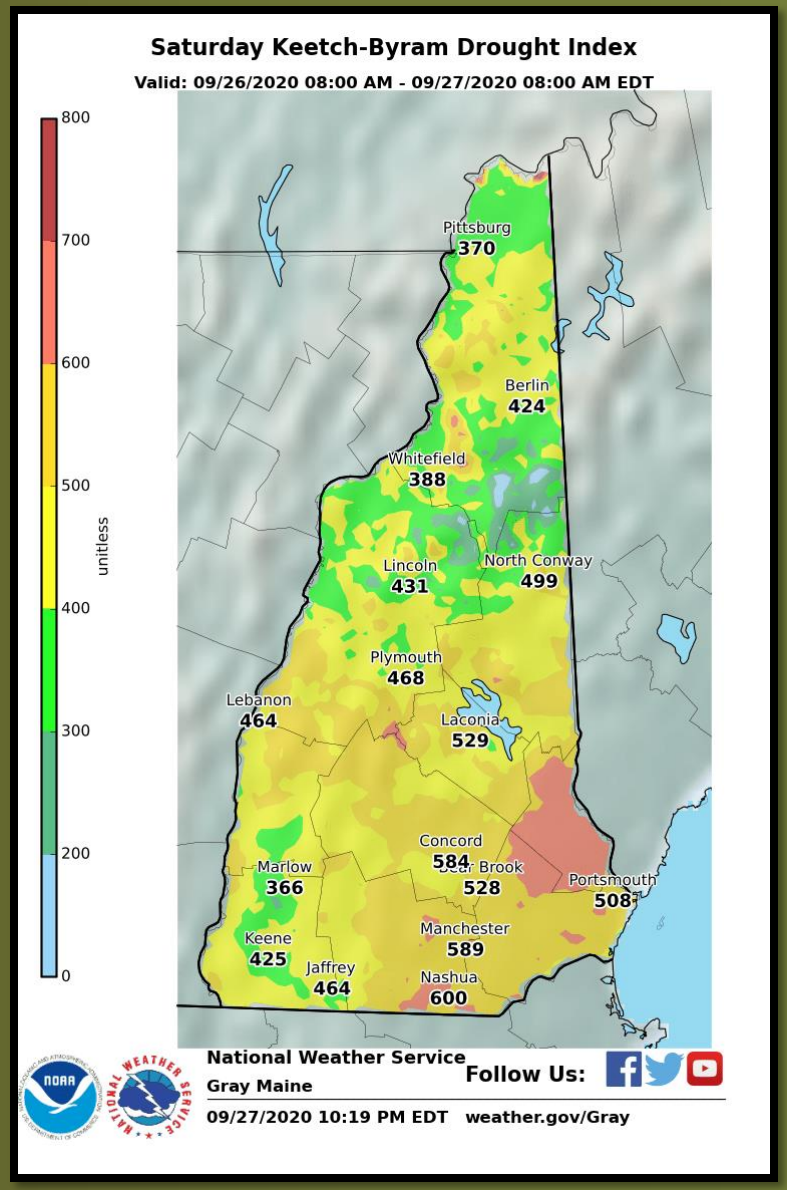

Milan


N. Haverhill


Stark

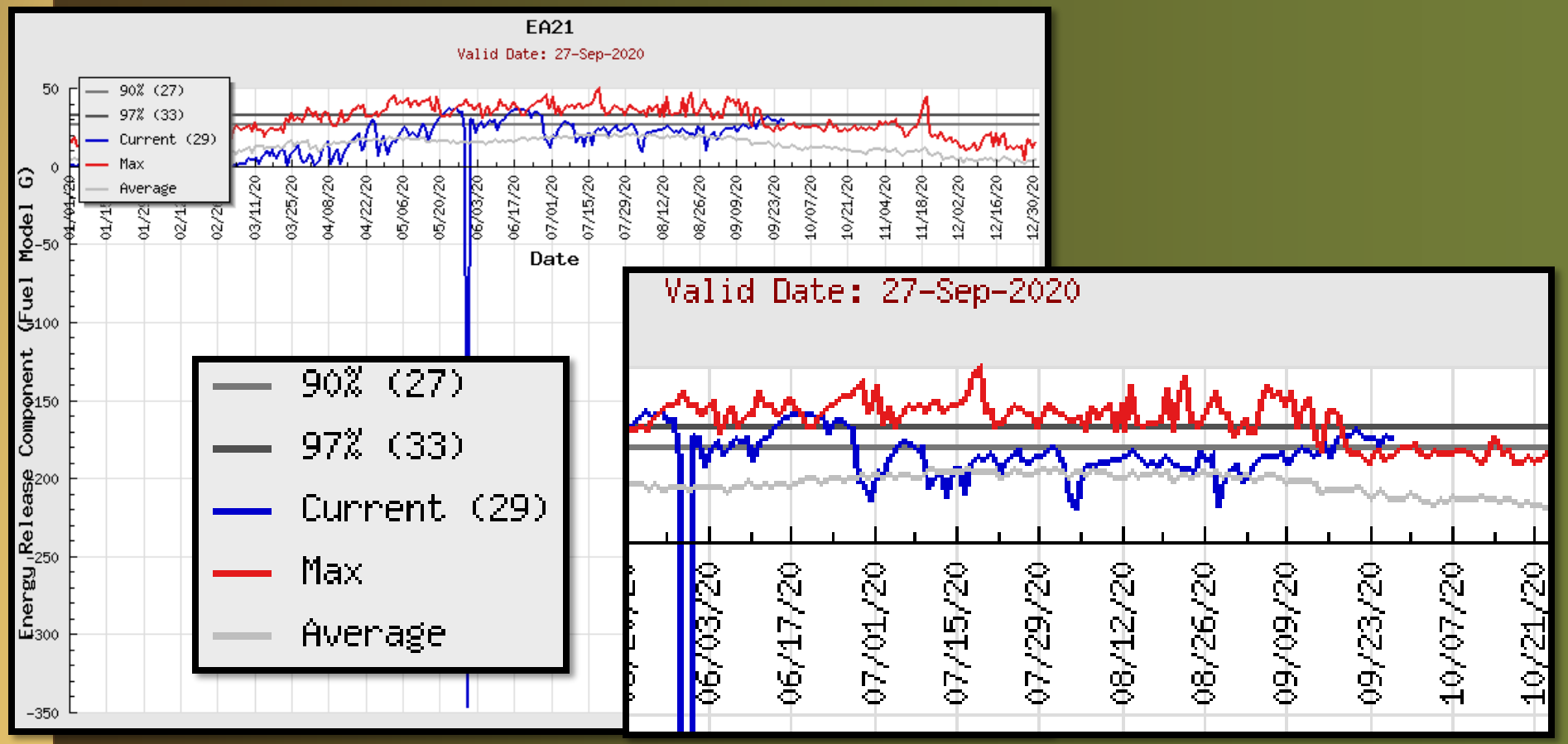
Keetch-Byram Drought Index (KBDI)

- A drought index specifically for fire potential assessment.
- It is a number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers. It is a continuous index, relating to the flammability of organic material in the ground
- Zero is the point of no moisture deficiency and 800 is the maximum drought that is possible
- 400 and above is when we start seeing fires become deep burning and more challenging to suppress



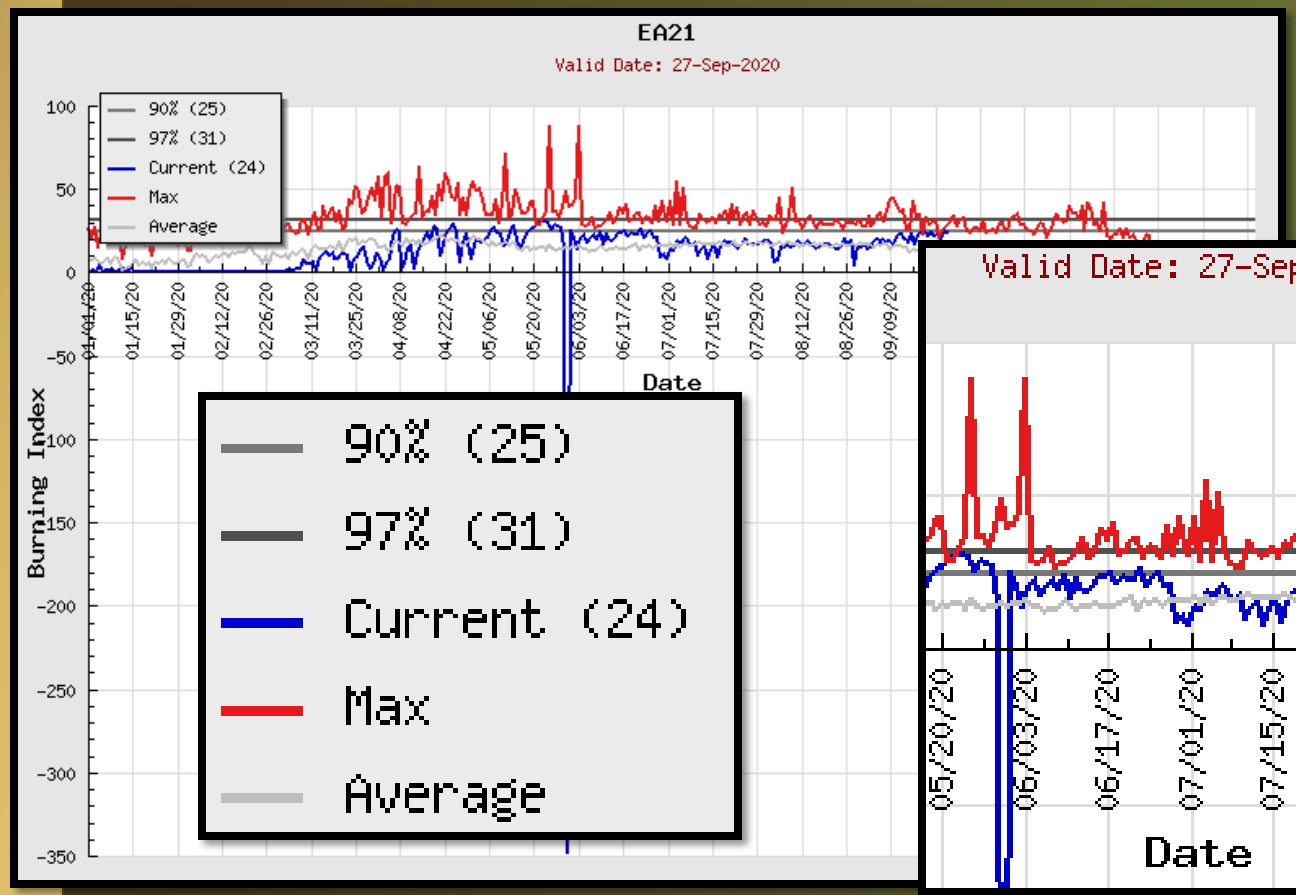
Energy Release Component (ERC)

- The ERC is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. The ERC is considered a composite fuel moisture index as it reflects the contribution of all live and dead fuels to potential fire intensity.

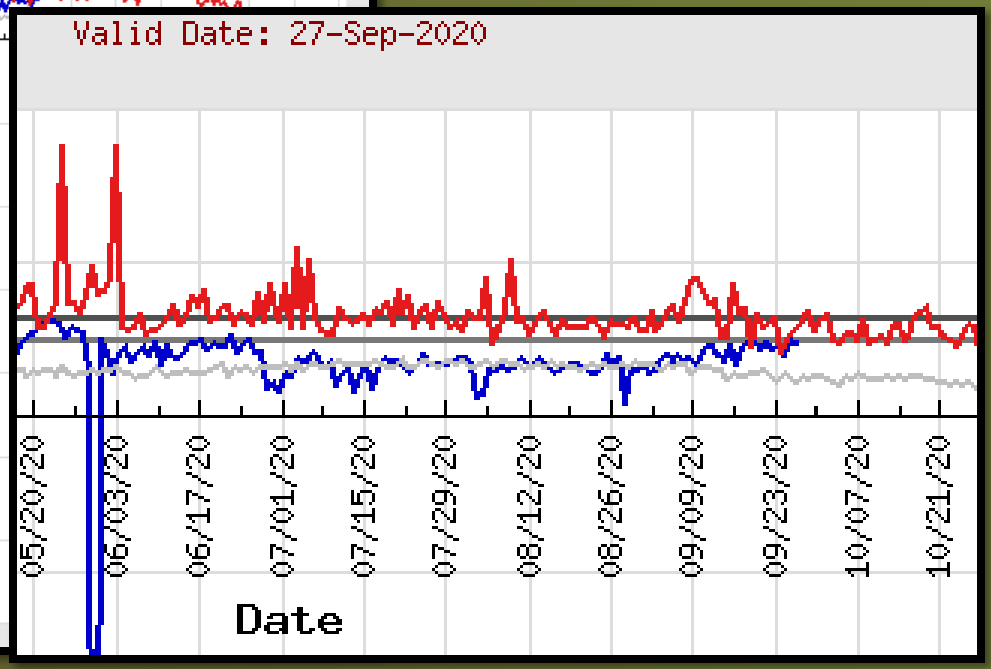


Burning Index (BI)

- An estimate of the potential difficulty of fire containment as it relates to the flame length at the head of the fire. A relative number related to the contribution that fire behavior makes to the amount or effort needed to contain a fire in a specified fuel type
- The BI shows us day to day fluctuations based on a 2pm snapshot of temp, RH, wind, daily temp. & RH ranges and precipitation duration.



Only 10% of the days from 1983-2007 had a BI of over 23 on the WMNF



As We Continue Through Fall…

- If the drought conditions continue, we expect the wildfire risk to increase
- Once the leaves drop from the trees
  - More dry fuel on the forest floor
  - More sun exposure to the forest floor
- Once areas receive a killing frost
  - More vegetation will be added to the available fuel loading
  - Continued deep burning fires with faster moving surface fires possible

Dilly Fire – 2017

- North Woodstock
- Started Oct. 3rd – Full Extinguishment Nov. 7th
  - No rain for a 23 day period
  - Last precipitation on Sept. 11th
  - Abnormally Dry-US Drought Monitor
  - Temps. mid 60's-mid 70's
  - RH's minimums 35-45%
  - Winds gusty at mid-afternoon NW 15-25 mph
  - Class III fire danger
  - 75 Acres

COSTS

- State/Local $80,000
- Federal $85,000
- In-Kind Services $330,000*
- **Grand Total $495,000**

*services not billed for (Blackhawks, local firefighters, food, lodging, ambulance, law enforcement, Grafton County communications unit, etc.)

Fire Restrictions

- Proclamation signed by the Governor on 9/24/2020
  - In effect until drought conditions improve
  - No open fires on public land except campgrounds
  - Burning brush pile type fires is prohibited everywhere
  - Unless prohibited by the local Forest Fire Warden, backyard campfires are allowed with a permit
  - No smoking in public woodlands or on public trails
- White Mountain National Forest
  - No campfires, except in designated areas in approved devices

State Preparation

- SEOC – Event created for Drought-Wildfire
- Coordination with WMNF
  - Daily severity briefing
  - Sharing of resources
- Forest Protection Bureau Staffing
  - 3 vacant Forest Ranger Positions (currently 5 certified rangers in the field)
  - Special Deputy Forest Fire Wardens – Call-when needed firefighters
  - NH Wildland Firefighters – Emergency firefighters with out of state experience

State Preparation

- Fire Towers – Not staffed daily. Part-time staffing
- Air Resources are aware of the situation
  - Civil Air Patrol has been flying detection flights
  - Private contract helicopter
  - National Guard helicopters
  - CL-415 (scoopers) out of Quebec

➢ Seacoast Type 3 Incident Management Team

- Able to provide some position support for Command and General Staff positions during a large fire

➢ Regional and National Resources

- Northeast Forest Fire Protection Compact
  - NH is a member and can call neighboring states and provinces for assistance
- Agreements are in place to call for National Resources
  - Availability may be limited due to western activity

Local Preparation

- Forest Fire Wardens and Fire Departments
  - Responding to incidents
  - Getting messaging out to the public
  - Managing local needs and assessing local fire conditions
- Local EMD's
  - Be prepared to assist in the event your community has a large wildfire incident
    - Coordinate with your fire department and Forest Fire Warden to support their operations
    - Assist with record keeping
      - Wildfires can reach Fire Management Assistance Grant (FMAG) levels – Record keeping is key

Contact Information

Douglas Miner

State of New Hampshire

Department of Natural and Cultural Resources

Division of Forests and Lands

Forest Protection Bureau

172 Pembroke Road

Concord NH 03301

(603) 227-8734

Ongoing Actions, Informing and Public Messaging
Jim Martin Public Information Officer, NHDES

1. Maintain Drought Management Webpage
2. Weekly email updates to Community Water Systems and Municipalities
3. Maintain a list of water systems with restrictions on NHDES Drought Management webpage
4. Issue press releases, proactive media relations as well as respond to media relations
5. Frequent social media posts on Facebook, Twitter and Instagram. Encourage all members of the DMT to repost or retweet posts.

Media Center

FOR IMMEDIATE RELEASE:
DATE: September 28, 2020
CONTACT: Jim Martin, (603) 568-9777

NH Drought Management Team (DMT) Meeting
Thursday, October 1, 2020

Today, in response to the increasing concerns related to the drought, Governor Chris Sununu announced that New Hampshire's Drought Management Team (DMT) will convene for the third time this year. Currently, 100% of the state is experiencing drought and portions of the state this past week were elevated to "extreme drought" (D3), including most of Strafford County and parts of Belknap County, Merrimack County and Rockingham County. The New Hampshire Drought Management Team will meet via video conference. The media are welcome to attend, but must RSVP before the meeting to ensure connectivity. At the meeting, an overview of drought conditions and impacts in the state will be discussed with key representatives across State Government, academia, industry and other organizations.

Meeting information:
New Hampshire Drought Management Team
Date: Thursday, October 1, 2020

Drought Management Team Discussion
(input from all Drought Management Team participants)

a. Recommended responses to any specific impacts
b. Recommended public messaging
c. Next steps
d. Next session; proposed for 5 November 2020




Backup

Drought Impacts, Drinking Water, Brandon Kernen, Administrator, DWGB, Water Division, NHDES

Legal Mechanisms to Address Drought

- Large groundwater withdrawal permits – reduce withdrawals based on phase of drought
- Emergency authority to approve new large groundwater withdrawals
- Municipal authority to restrict or ban residential lawn watering during drought (applies to public **and** *residential wells*)
- Authority to require dam owners to release water
- Authority to require a public water system to extend service to address a nearby emergency

RSA 41:11-d Municipal Lawn Watering Restrictions

- Municipalities can restrict/ban lawn watering if the State or Federal government declare a stage of drought.
- Governing body can adopt rules and enforce them within a few days
- Applies to lawn watering using water from residential wells or public water systems
- Every two years legislative efforts to expand or reduce the authority for implementing water use restrictions have been pursued in the Legislature.
- One of the only states to extend restrictions to residential wells.

TITLE III
TOWNS, CITIES, VILLAGE DISTRICTS, AND UNINCORPORATE

CHAPTER 41
CHOICE AND DUTIES OF TOWN OFFICERS

Selectmen

Section 41:11-d

41:11-d Restricting the Watering of Lawns. –
I. The local governing body may establish regulations restricting the use of water from private wells or public water systems for outdoor lawn watering when administrative agencies of the state or federal government have designated the region as being under a declared state or condition of drought. The grass playing turf of a recreational field, the grass playing surfaces of a golf course, and grass agricultural fields, including fields used for the production of sod, may be excluded from any restrictions pursuant to this paragraph. Nothing in this paragraph shall limit any public water system's authority to require a reduction in demand or implementation of conservation measures in accordance with rules of the department of environmental services.
II. The local governing body shall give notice prior to the implementation of the regulations in paragraph I. Notice shall be given at least 3 calendar days before the regulations are implemented. The notice required under this section shall not include the day notice is posted. Notice of the regulations shall be published in a paper of general circulation in the municipality and shall be posted in at least 2 public places.
III. The full text of the proposed regulations need not be included in the notice if an adequate statement describing the proposal and designating the place where the proposal is on file for public inspection is stated in the notice.

Source. 2007, 218:1, eff. Aug. 24, 2007. 2019, 213:1, eff. Sept. 10, 2019.